2021 Low Emission Advanced Power (LEAP) Workshop Agenda

(updated on 10/21/2021)

Advanced Systems Integration					
PDT (Pacific Daylight Time)	**EDT** (Eastern Daylight Time)	**CET** (Central European Time)	**Monday 11/01/2021**	**Tuesday 11/02/2021**	**Wednesday 11/03/2021**
6:30AM -7:00AM	9:30AM -10:00AM	3:30PM -4:00PM	Log-on, Welcome, Introduction	Log-on, Welcome, Introduction	Log-on, Welcome, Introduction
7:00AM -8:30AM	10:00AM -11:30AM	4:00PM -5:30PM	**Session 1- Goal net-zero (Sydni Credle)** - Keynote Speakers: Sam Thomas (FECM), Bryan Morreale (NETL), Aristide Massardo (UNESCO) - Opportunities for achieving EO-14008 and social justice - Transition involving FECM and EERE	**Session 4- Microgrids (Rick Lank)** - Coupling non-dispatchable with dispatchable generation - Moving to a distributed power paradigm for early adoption of new technologies	**Session 7- Paths to commercialization (Dr. Dave Tew)** - Commercialization of integrated energy systems for hybrid electric power in INTEGRATE and REEACH
30 minutes	30 minutes	30 minutes	Break	Break	Break
9:00AM -10:30AM	12:00PM -1:30PM	6:00PM -7:30PM	**Session 2- Renewables and electric integration (Dr. Jennifer Kurtz)** - Renewables, hydrogen, electric integration with storage, and the need for dispatchable power	**Session 5- Thermally/ chemically integrated systems (Dr. Alberto Traverso)** - SOFC/SOEC/GT/ICE/ - TES/CCS/CSP/NE/sCO2/etc. - Novel hybrid concepts	**Session 8- Controls for novel concepts (Dr. Paolo Pezzini)** - High-speed coordination of dynamic control with supervisory control, including agents and MIMO control strategies with multi-objective optimization
60 minutes	60 minutes	60 minutes	Break	Break	Break
11:30AM -1:00PM	2:30PM -4:00PM	8:30PM -10:00PM	**Session 3- Transition cost and impact (Dr. Larry Shadle)** - Impact and potential costs using existing technologies and the need for new technologies in generation and distribution	**Session 6- Dynamic performance (Dr. Jack Brouwer)** - Part load performance and dynamics - Challenges for highly coupled systems, non-linear interactions, control issues	**Session 9- Open discussion and conclusions (Dr. David Tucker)** - Co-design of components, systems, and controls - Conclusion and summary of results

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Cyber-Physical Modeling					
PDT (Pacific Daylight Time)	**EDT** (Eastern Daylight Time)	**CET** (Central European Time)	**Thursday 11/04/2021**	**Friday 11/05/2021**	
6:30AM -7:00AM	9:30AM -10:00AM	3:30PM -4:00PM	Log-on, Welcome, Introduction	Log-on, Welcome, Introduction	
7:00AM -8:30AM	10:00AM -11:30AM	4:00PM -5:30PM	**Session 10- An Introduction to cyber-physical modelling (Prof. Mark Bryden)** - What is cyber-physical modeling - Hyper as a cyber-physical model - Italian and German cyber-physical models	**Session 13- Intelligent, reconfigurable, adaptive energy systems (Prof. Mark Bryden)** - Hyper lesson learned (Dr. David Tucker) - What should we do next? - How do we move forward?	
30 minutes	30 minutes	30 minutes	Break	Break	
9:00AM -10:30AM	12:00PM -1:30PM	6:00PM -7:30PM	**Session 11- Cyber-physical modeling and energy system design (Prof. Mark Bryden)** - Adaptive Design Prof. Scott Ferguson - Digital Twin - Does it breakdown design barriers? (Prof. Mark Bryden)	**Session 14- Report out & open discussion (Dr. Paolo Pezzini)** - Summary slides - Next Steps (Prof. Mark Bryden & Dr. David Tucker)	
60 minutes	60 minutes	60 minutes	Break	Closing	
11:30AM -1:00PM	2:30PM -4:00PM	8:30PM -10:00PM	**Session 12- Building cyber-physical energy system models (Prof. Mark Bryden)** - Impact and potential costs using		